

variance with the text, the text with itself. Hence, to quote a few out of innumerable instances, such alternatives as Yezd and Yuzd, Dalaki and Dulukee, Mahamadan and Mahomedan, Geeach and Giach, Tabaz and Tubbuzz, Ghain and Ghaeen. Then such old friends as Meshed, Bushire, Turcoman, Hari-rud, disguised as Mushud, Bushuhr, Turkmun, Hurri Rood, without any conceivable advantage. It may be stated that owing to these eccentricities the spelling in the passages here quoted has necessarily been reduced to system.

A. H. KEANE

OUR BOOK SHELF

Catechism of Agricultural Chemistry and Geology. By the late J. F. W. Johnston. An Entirely New Edition, Revised and Enlarged by C. A. Cameron, M.D. Seventy-eighth Thousand. (Edinburgh and London: Blackwoods, 1879.)

THIS popular and useful little book has been decidedly improved by the additions and alterations which Dr. Cameron has made. Since the author's death, about a quarter of a century ago, this catechism had been once revised (in 1863) by Dr. Voelcker, but the time had long since arrived for further changes. If the present editor had been less scrupulous in adhering to the original form and substance of Prof. Johnston's work, this issue would have justly merited the description on the title-page of "An entirely new edition, revised and enlarged." There are, it is true, two fresh pages in the present edition, corresponding to a few new tables of the composition of cattle foods, but we fail to find the numberless small changes and additions which the progress of science demanded. Every sentence of the book should have been rigorously scrutinised and thoroughly amended, or even excised, where necessary. All expressions such as these: "Rancid butter is said to be sweetened" (p. 73), "It is said that if a cow be liberally supplied with whey" (p. 74), "The feeding with whey thickened with meal is said" (p. 74), should be removed. Statements of which the teacher is not sure should not find a place in an elementary catechism. Again, the table, on p. 34, of the ash-constituents removed from an acre by various crops needs emendation. On turning to page 53 we find two other tables showing the produce of corn and straw in certain field experiments with various manures. We do not think the omission of these tables would entail any loss, while their place might be profitably occupied by a series of conclusions deduced from the really satisfactory experiments on crops made at Rothamsted or at some of the continental agricultural stations. For, indeed, what lesson can be learnt from the statement (p. 53) that in an unnamed locality, on an undescribed soil, during a season of which the rainfall and temperature are unrecorded, and by the use of a wheat manure the composition of which is not furnished to the reader, 42 bushels of wheat were produced per acre? Without duplicates and without repetition in different localities and in different seasons, field-trials of manures are positively misleading. But when once such tables as those on pages 34 and 53 have got into a popular work and remained there fifteen years, they have a good chance of remaining fifty.

The statement on p. 67 that parsnips contain no starch will not stand, while we conclude that it was by some oversight that a tabular account of the constituents of various root-crops has been omitted by Dr. Cameron in re-casting and amplifying the data given by Dr. Voelcker in previous editions on page 65. We note here that question 363 on page 63 is repeated in question 374 on page 67, and that the statistics (p. 74) of cheese production in the United Kingdom are no longer correct.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

Palisa's Comet

I INCLOSE an ephemeris of the comet which was discovered at Pola by Herr Palisa on August 21, thinking that it may be of interest to some of your readers.

The ephemeris is calculated from observations made at my observatory on the nights of August 26, 27, and 28, by Dr. R. Copeland and Herr Lohse.

The comet is easily visible in a 4-inch telescope.

Ephemeris of Palisa's Comet

Berlin midnight.	R.A. $\odot$ h. m.	Decl. $\odot$	Log. Δ .	Log. r .	Bright- ness.
Sept. 5 ... 11	43'6 ...	+44 47'0 ...	0'2219 ...	0'0393	
6 ...	50'4 ...	44 15'8 ...	'2191 ...	'0362 ...	1'7
7 ... 11	57'2 ...	43 42'7 ...	'2163 ...	'0331	
8 ... 12	3'9 ...	43 7'8 ...	'2137 ...	'0301	
9 ...	10'6 ...	42 31'1 ...	'2112 ...	'0272	
10 ...	17'3 ...	41 52'5 ...	'2088 ...	'0243 ...	1'8
11 ...	23'9 ...	41 12'1 ...	'2065 ...	'0215	
12 ...	30'4 ...	40 30'0 ...	'2043 ...	'0187	
13 ...	36'8 ...	39 46'1 ...	'2023 ...	'0161	
14 ...	43'2 ...	39 0'5 ...	'2004 ...	'0136 ...	2'0
15 ...	49'5 ...	38 13'3 ...	'1987 ...	'0111	
16 ... 12	55'7 ...	37 24'5 ...	'1971 ...	'0087	
17 ... 13	1'8 ...	36 34'2 ...	'1957 ...	'0064	
18 ...	7'8 ...	35 42'4 ...	'1945 ...	'0042 ...	2'1
19 ...	13'7 ...	34 49'2 ...	'1934 ...	'0021	
20 ...	19'5 ...	33 54'8 ...	'1925 ...	0'0001	
21 ...	25'2 ...	32 59'2 ...	'1917 ...	9'9983	
22 ...	30'8 ...	32 2'4 ...	'1911 ...	'9965 ...	2'3
23 ...	36'3 ...	31 4'6 ...	'1907 ...	'9948	
24 ...	41'7 ...	30 5'8 ...	'1905 ...	'9932	
25 ...	47'0 ...	29 6'2 ...	'1904 ...	'9919	
26 ...	52'2 ...	28 5'7 ...	'1906 ...	'9906 ...	2'3
27 ... 13	57'3 ...	27 4'7 ...	'1909 ...	'9895	
28 ... 14	2'3 ...	26 3'0 ...	'1914 ...	'9885	
29 ...	7'1 ...	25 0'8 ...	'1920 ...	'9877	
30 ... 14	11'9 ...	+23 58'2 ...	0'1928 ...	9'9869 ...	2'3

47, Brook Street, September 5

LINDSAY

Insect Swarms

IT may be worth mentioning in connection with Mr. J. Clarke Hawkshaw's interesting account of the wonderful insect-swarm at Trouville, on August 12 and 13, that the two species which composed it were noticed in immense profusion about the same time in the West of England.

On the 13th ult. (which was one of the very few summer days of the season) I was driving with a friend from Exmouth to Budleigh-Salterton, on the South Devon coast, when our attention was attracted by the enormous multitude of insects (moths and butterflies) which were fluttering over the flowery margin of the road. The butterfly was at once recognised as the "Painted Lady;" the moth was not determined, but from its general appearance, its companionship, and all the circumstances of the case, I have no doubt that it was the *Plusia gamma*. The swarm attended us, with little variation in the numbers, throughout almost the whole of our journey (a distance of five miles), and on reaching Budleigh we found *V. cardui* clustering thickly on the flowers in the brilliant little gardens facing the sea.

Along the road the moth was in the greatest profusion, the numbers being frequently so great as to form a perfect cloud.

The effect of the quick, restless, irregular movements of the great host, stretching on mile after mile, was very curious. The butterflies were, of course, less plentiful, but still their numbers must have been immense. They seemed to be finely coloured and in very perfect condition.

The direction in which the swarm was travelling was not specially noted; indeed if food was the object sought it might

well be content to linger in the rich and pleasant pasturage in which we encountered it.

I may add that our observations were confined almost entirely to the grassy and flowery borders of the road, and that the swarm which excited our wonder was probably only a single column of a countless host.

THOMAS HINCKS

Budleigh-Salterton, September 2

"Rag-Bushes" 1

A REMARKABLE instance of this custom existed (I am referring to twenty-five years ago) in Ceylon. On the West Coast, on the road between Chilaw and Jaffna, at a place—the name of which, after so many years' absence, I forget—was a vast collection of rag-offerings suspended to the bushes through which the road was cut. It went by the name of "Rag Fair," with those of us who had travelled in that direction: there were miles of it. They were said to be offerings to the goddess "Kali" (who, in the midst of them, had a temple and *well*), to propitiate her and obtain her protection against the dangers of the way, especially those of wild beasts.

Once travelling up that road, my horsekeeper, "Multu," watered my horse at the sacred well. Out rushed the priest, furious with wrath, and cursed Multu with all the vengeance of "Kali," assuring him that he would be eaten by leopards that very night.

Multu, who, I fear, was an atheist after his kind, merely laughed at the offended guardian of the shrine, and pointing to my rifle lying in the hollow of his arm, told him that while the master or himself carried *that*, he did not care a copper "chailly" (a "brass farden," vernacular) for "Kali," the leopards, or himself.

I soothed the irate old humbug by hanging a strip of rag, which I carried in my pocket for gun-cleaning, on a branch, but especially with a trifling bit of silver—I believe this latter portion of an offering is usually, with miracle- and charm-makers, the most efficacious—and went my way.

Multu had his triumph that night. A wretched coolie travelling along the road—one of the class that supply the chief abundance of the rags—after hanging up his offering and doing "pooja," was, while sleeping in the "maddam," or porch of the temple, of his protecting goddess, actually seized and carried off by a leopard. He was rescued—how, I forget—and brought to the "Rest-house" where I was, but was so dreadfully lacerated about the hips and lower portion of the body that he died in a few hours.

E. L. LAYARD

British Consulate, Noumea, July 5

Signalling by Sunshine 2

THOUGH I fear by the time this reaches you the subject will have been exhausted, I send you this "note;" you can but throw it into the paper-basket if not wanted.

While at the Cape of Good Hope, my dear old friend Sir Thomas Maclear, then Astronomer-Royal, told me that while measuring the arc of the meridian to verify Lacaille's work, he signalled with the heliostat enormous distances, the clear atmosphere of the Cape being eminently adapted for the purpose. If my memory does not play me false, I think he said one station in connection with his cairn on the top of Table Mountain (3,800 feet) was ninety-five miles distant.²

His means of directing the flash was as follows:—A tiny hole is scratched in the quicksilver in the centre of the heliostat, and a board with a larger hole is planted in front of the station, some few feet from the instrument.

The corresponding station is brought in view through the two holes, and all three are consequently "in line." The flash is then directed through the hole in the board, and is thus sent straight to the desired point. Of course telescopes were used for long distances.

Another old friend, Admiral Trotter, used to converse from Admiralty House, Simon's Bay, with friends staying at "Kalk" Bay, some eight or nine miles distant.

E. L. LAYARD

British Consulate, Noumea, July 4

¹ NATURE, vol. xx. p. 495.

² NATURE, vol. xx. p. 508.

³ An amusing coincidence may be noted here. I was returning from Graham's Town by a steamer, and when we came in sight of the old mountain, I happened to mention Sir Thomas's signalling. My hearers on board jeered at the possibility of making signals with "a piece of looking-glass," when suddenly we were half blinded by a flash of light from the top of the mountain. "What on earth is that?" was the general exclamation! "Only Sir Thomas signalling," was my triumphant reply, "Perhaps you will some of you now believe in a 'bit of looking-glass.'" Sir Thomas's son had, for fun, sent a flash or two down to the steamer.

Bag-like Fabrication exhibited by Sir Sydney Saunders

As much the "production of a large species of spider in Fiji" as a lady's silk dress is the "production" of a worm in China!

A large spider, of a genus common all over Polynesia, and here also in New Caledonia (where formerly much eaten by the aborigines) produces a very strong, thick web. On Sundays generally, when no work is going on in the plantations, the imported Pacific Islanders amuse themselves by wandering about the bush, armed with a frame-work of cane in the shape of an elongated cone, affixed to a long stick. This they twist and twist, round and round in the spiders' webs, till it is coated, sometimes half an inch thick, with the viscous fabric. They then untie the fastenings and draw out the strips of cane, when the bag becomes like a long night-cap (old pattern). I have one before me now, over a yard long, a foot across, and pretty thick, which does not weigh one ounce! It is yellow; the New Caledonian ones are usually grey. I do not think the Fijian natives had the custom originally. Some of the New Caledonian are stretched tight enough to resemble an Indian suspension "tom-tom," and really emit a slight sound on being "tapped." This will give some idea of the strength of the thread, for which see also *The Field* ("My Trip to Lifu"), wherein I notice the impromptu butterfly nets made by some boys stretching the web of this spider across the loop of a bent twig.

E. L. LAYARD

British Consulate, Noumea, July 5

Observations on a Wind-Whirl

WHILE making magnetic determinations at Schell City, Mo., a wind-whirl of some violence passed near our tent, moving with the characteristic swaying and halting motions of the tornado. Its base was quite pointed, and about two feet in diameter.

Unlike those seen last year, and described in NATURE about a year ago, there were no surface-winds strong enough to bear dust along the surface of the ground, but the dust carried up in the vortex was collected only at the vertex of the whirl. The dust column was about 200 feet high, and perhaps 30 or 40 feet in diameter at the top. The direction of rotation was the same as that of storms in the northern hemisphere. Leaving the road, the whirl passed out on the prairie, immediately filling the air with hay, which was carried up in somewhat wider spirals, the diameter of the cone thus filled with hay being about 150 feet at the top. It was then observed, also, that the dust column was *hollow*. Standing nearly under it, the bottom of the dust column appeared like an annulus of dust surrounding a circular area of perfectly clear air. This area grew larger as the dust was raised higher, being about 15 or 20 feet wide when it was last observed. This whirl could be observed half a mile, finally disappearing over a hill.

This observation, in connection with the one given by me a year ago, has a very important bearing on the theory of "waterspouts" and tornadoes.

FRANCIS E. NIPHER

St. Louis, Mo.

Transportation of Seeds

IN a recent number of NATURE which has lately reached my hands, I observe a letter from Consul Layard on the above subject, to which let this note be an addendum.

In my daily expeditions I am exceedingly troubled by the seeds of the *Andropogon acicularis* (Retz), not only adhering on the slightest touch to my clothes, especially to my trousers and socks, to the daily annoyance and occupation of much of the time of my servant in their obstinate removal, but even penetrating my limbs and adhering there to my great discomfort, for the itching that they cause is sometimes intolerable; and my limbs consequently present somewhat the appearance of those of a scarlet-fever patient.

HENRY O. FORBES

Kesala, Bantam, Java, July

Shark's Teeth

I WOULD draw attention to the operation of the teeth of the shark on the seizure of its prey. I recollect in Nicholson's "Zoology," a statement to the following effect: "The sharks have teeth arranged in several rows, of which only the outermost is employed, the other rows seeming to replace the outermost when worn out." In a recent visit to the Cocos Islands I had many opportunities of observing these animals in the use of their formidable weapons. In the act of seizure the whole jaw is protruded to a distance (varying according to the size of the fish) of several inches, the innermost teeth coming into position erect